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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL62867

DATE: 08/04/09

PREPARED FOR: NEXXUS LIGHTING, INC.

CATALOG NUMBER: AACMR16WW25

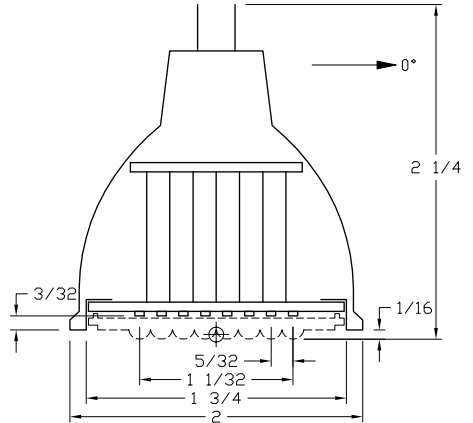
LAMP: ONE MR-16 STYLE BI-PIN BASE LED LAMP, MOLDED FINNED WHITE PLASTIC BODY, ONE WHITE CIRCUIT BOARD WITH 39 VERTICAL BASE-UP WHITE LIGHT EMITTING DIODES (LEDS), MULTIPLE METAL POSTS BETWEEN UPPER AND LOWER HOUSING, FROSTED FLAT PLASTIC LENS WITH ONE CLEAR HEMISPHERICAL OPTIC BELOW EACH LED, VERTICAL BASE-UP POSITION.

TOTAL INPUT WATTS = 3.29 AT 12.0 VOLTS AC

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (12VAC, 60Hz) TO THE LAMP.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 25.25 FEET



CANDELA DISTRIBUTION

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 | FLUX |
|----|-----|------|------|------|------|------|
| 0 | 246 | 246 | 246 | 246 | 246 | 19 |
| 5 | 223 | 224 | 225 | 227 | 228 | 30 |
| 15 | 94 | 99 | 112 | 125 | 129 | 20 |
| 25 | 33 | 35 | 41 | 49 | 52 | 16 |
| 35 | 25 | 25 | 26 | 28 | 29 | 19 |
| 45 | 25 | 24 | 25 | 26 | 26 | 17 |
| 55 | 20 | 19 | 21 | 22 | 17 | 11 |
| 65 | 12 | 12 | 12 | 13 | 10 | 6 |
| 75 | 6 | 6 | 6 | 6 | 6 | 2 |
| 85 | 2 | 2 | 2 | 2 | 2 | |
| 90 | 1 | 1 | 1 | 1 | 1 | |

ZONAL LUMEN SUMMARY

| ZONE | LUMENS | %FIXT |
|--------|--------|-------|
| 0- 30 | 71 | 48.7 |
| 0- 40 | 87 | 60.3 |
| 0- 60 | 124 | 85.7 |
| 0- 90 | 145 | 100.0 |
| 90-180 | 0 | 0.0 |
| 0-180 | 145 | 100.0 |

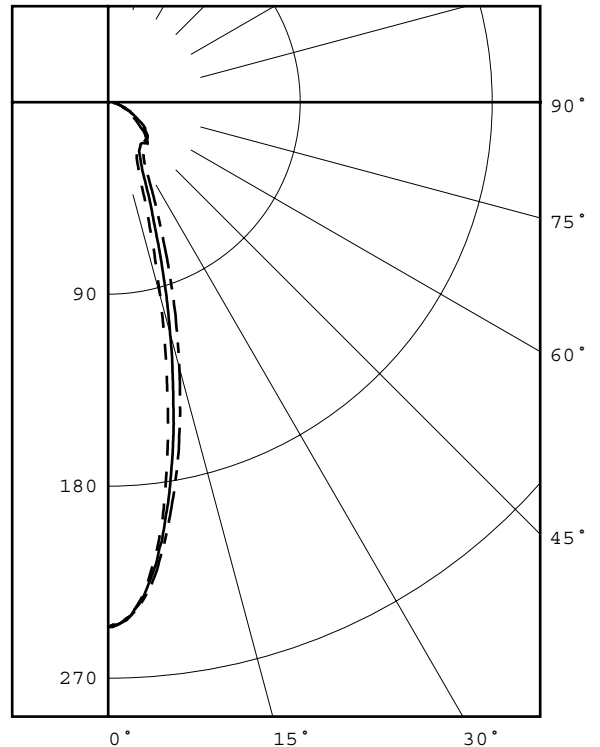
EFFICACY = 44.1 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG
 SPACING CRITERIA : 0.4 0.5
 BEAM ANGLE (50%) : 25.4 X 31.2 DEGREES
 FIELD ANGLE (10%) : 92.0 X 93.5 DEGREES
 LUMINOUS DIAMETER: 1.750

LUMINANCE DATA IN CANDELA/SQ M

| ANGLE IN DEG | AVERAGE 0-DEG | AVERAGE 45-DEG | AVERAGE 90-DEG |
|--------------|---------------|----------------|----------------|
| 45 | 22784. | 22784. | 23695. |
| 55 | 22470. | 23594. | 19100. |
| 65 | 18298. | 18298. | 15248. |
| 75 | 14939. | 14939. | 14939. |
| 85 | 14788. | 14788. | 14788. |



LEGEND:
 0-deg: - - - - -
 45-deg: _____
 90-deg: - . - . - .

Checked *N. WHITE*
 Approved *R. BEATTIE*



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CANDELA DISTRIBUTION
 LATERAL ANGLE

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|------|-----|------|------|------|------|
| 0.0 | 246 | 246 | 246 | 246 | 246 |
| 0.5 | 245 | 245 | 245 | 245 | 246 |
| 1.0 | 245 | 245 | 245 | 245 | 245 |
| 1.5 | 244 | 244 | 244 | 244 | 244 |
| 2.0 | 242 | 242 | 242 | 243 | 243 |
| 2.5 | 240 | 240 | 241 | 241 | 241 |
| 3.0 | 238 | 238 | 238 | 239 | 239 |
| 3.5 | 235 | 235 | 236 | 237 | 237 |
| 4.0 | 232 | 232 | 233 | 234 | 234 |
| 4.5 | 228 | 228 | 229 | 230 | 231 |
| 5.0 | 223 | 224 | 225 | 227 | 228 |
| 5.5 | 218 | 219 | 221 | 223 | 224 |
| 6.0 | 213 | 214 | 217 | 219 | 220 |
| 6.5 | 208 | 209 | 211 | 214 | 215 |
| 7.0 | 202 | 203 | 207 | 210 | 211 |
| 7.5 | 196 | 197 | 201 | 205 | 206 |
| 8.0 | 189 | 191 | 195 | 200 | 201 |
| 8.5 | 182 | 184 | 190 | 195 | 196 |
| 9.0 | 175 | 178 | 184 | 189 | 191 |
| 9.5 | 168 | 171 | 178 | 184 | 186 |
| 10.0 | 161 | 164 | 172 | 179 | 181 |
| 10.5 | 154 | 157 | 166 | 173 | 176 |
| 11.0 | 147 | 150 | 160 | 168 | 171 |
| 11.5 | 139 | 144 | 154 | 162 | 166 |
| 12.0 | 132 | 137 | 147 | 157 | 160 |
| 12.5 | 126 | 130 | 141 | 152 | 155 |
| 13.0 | 119 | 123 | 135 | 146 | 150 |
| 13.5 | 112 | 117 | 129 | 141 | 144 |
| 14.0 | 106 | 111 | 124 | 135 | 139 |
| 14.5 | 100 | 105 | 118 | 130 | 134 |
| 15.0 | 94 | 99 | 112 | 125 | 129 |
| 15.5 | 88 | 93 | 107 | 120 | 124 |
| 16.0 | 83 | 88 | 102 | 115 | 119 |
| 16.5 | 78 | 83 | 97 | 110 | 114 |
| 17.0 | 74 | 78 | 92 | 105 | 109 |
| 17.5 | 69 | 74 | 87 | 100 | 105 |
| 18.0 | 65 | 70 | 82 | 96 | 100 |
| 18.5 | 61 | 66 | 78 | 91 | 96 |
| 19.0 | 58 | 62 | 74 | 87 | 91 |
| 19.5 | 55 | 59 | 70 | 83 | 87 |
| 20.0 | 52 | 55 | 66 | 79 | 83 |
| 22.5 | 40 | 43 | 52 | 62 | 65 |
| 25.0 | 33 | 35 | 41 | 49 | 52 |
| 27.5 | 29 | 30 | 34 | 40 | 42 |
| 30.0 | 27 | 27 | 30 | 34 | 35 |
| 32.5 | 26 | 25 | 27 | 30 | 31 |
| 35.0 | 25 | 25 | 26 | 28 | 29 |
| 37.5 | 25 | 24 | 25 | 27 | 28 |
| 40.0 | 25 | 24 | 25 | 26 | 27 |
| 42.5 | 25 | 24 | 26 | 26 | 27 |
| 45.0 | 25 | 24 | 25 | 26 | 26 |
| 47.5 | 24 | 23 | 25 | 26 | 24 |
| 50.0 | 23 | 22 | 24 | 25 | 22 |
| 52.5 | 21 | 20 | 22 | 23 | 19 |
| 55.0 | 20 | 19 | 21 | 22 | 17 |
| 57.5 | 18 | 17 | 19 | 20 | 15 |
| 60.0 | 16 | 15 | 16 | 17 | 13 |
| 62.5 | 14 | 14 | 14 | 15 | 11 |
| 65.0 | 12 | 12 | 12 | 13 | 10 |
| 67.5 | 11 | 10 | 10 | 11 | 9 |
| 70.0 | 9 | 9 | 8 | 9 | 8 |
| 72.5 | 8 | 7 | 7 | 7 | 7 |
| 75.0 | 6 | 6 | 6 | 6 | 6 |
| 77.5 | 5 | 5 | 5 | 5 | 5 |
| 80.0 | 4 | 4 | 4 | 4 | 4 |



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CANDELA DISTRIBUTION
LATERAL ANGLE

| | 0.0 | 22.5 | 45.0 | 67.5 | 90.0 |
|------|-----|------|------|------|------|
| 82.5 | 3 | 3 | 3 | 3 | 3 |
| 85.0 | 2 | 2 | 2 | 2 | 2 |
| 87.5 | 1 | 1 | 2 | 2 | 1 |
| 90.0 | 1 | 1 | 1 | 1 | 1 |



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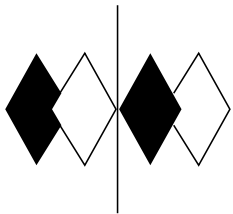
PREPARED FOR: NEXXUS LIGHTING, INC.

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

| RC | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 111 | 107 | 103 | 100 | 108 | 105 | 101 | 99 | 100 | 98 | 95 | 97 | 95 | 93 | 93 | 91 | 90 | 88 |
| 2 | 103 | 96 | 90 | 86 | 100 | 94 | 89 | 85 | 91 | 87 | 83 | 88 | 84 | 81 | 85 | 82 | 79 | 77 |
| 3 | 96 | 87 | 80 | 75 | 93 | 86 | 79 | 74 | 83 | 77 | 73 | 80 | 76 | 72 | 78 | 74 | 71 | 69 |
| 4 | 89 | 80 | 72 | 67 | 87 | 78 | 72 | 66 | 76 | 70 | 65 | 74 | 69 | 65 | 72 | 67 | 64 | 62 |
| 5 | 84 | 73 | 66 | 60 | 82 | 72 | 65 | 60 | 70 | 64 | 59 | 68 | 63 | 59 | 67 | 62 | 58 | 56 |
| 6 | 79 | 68 | 60 | 55 | 77 | 67 | 60 | 55 | 65 | 59 | 54 | 64 | 58 | 54 | 62 | 57 | 54 | 52 |
| 7 | 75 | 63 | 56 | 51 | 73 | 63 | 56 | 51 | 61 | 55 | 50 | 60 | 54 | 50 | 59 | 54 | 50 | 48 |
| 8 | 71 | 59 | 52 | 47 | 69 | 59 | 52 | 47 | 58 | 51 | 47 | 56 | 51 | 47 | 55 | 50 | 47 | 45 |
| 9 | 67 | 56 | 49 | 44 | 66 | 55 | 49 | 44 | 54 | 48 | 44 | 53 | 48 | 44 | 53 | 48 | 44 | 42 |
| 10 | 64 | 53 | 46 | 42 | 63 | 53 | 46 | 42 | 52 | 46 | 42 | 51 | 45 | 42 | 50 | 45 | 41 | 40 |

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.



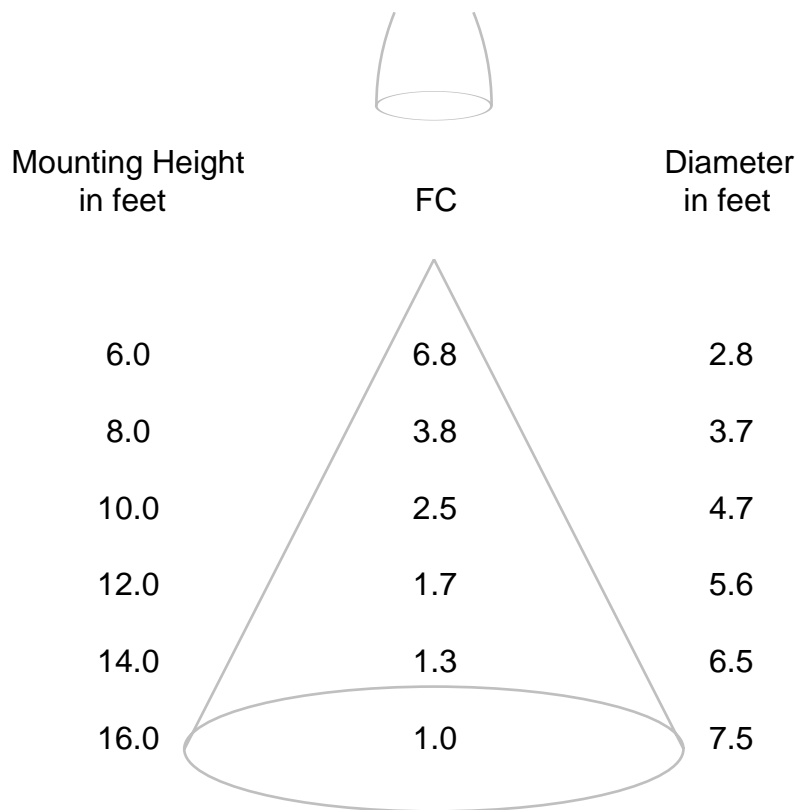
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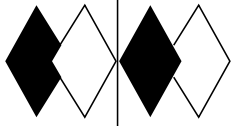
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CONE OF LIGHT DIAGRAM

(diameter shown is where fc value is half the fc at nadir)



Note: The candela values used to generate this diagram were obtained by averaging the photometric data into a single plane.



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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 5 foot mounting height

REPORT NO.: ITL62867A

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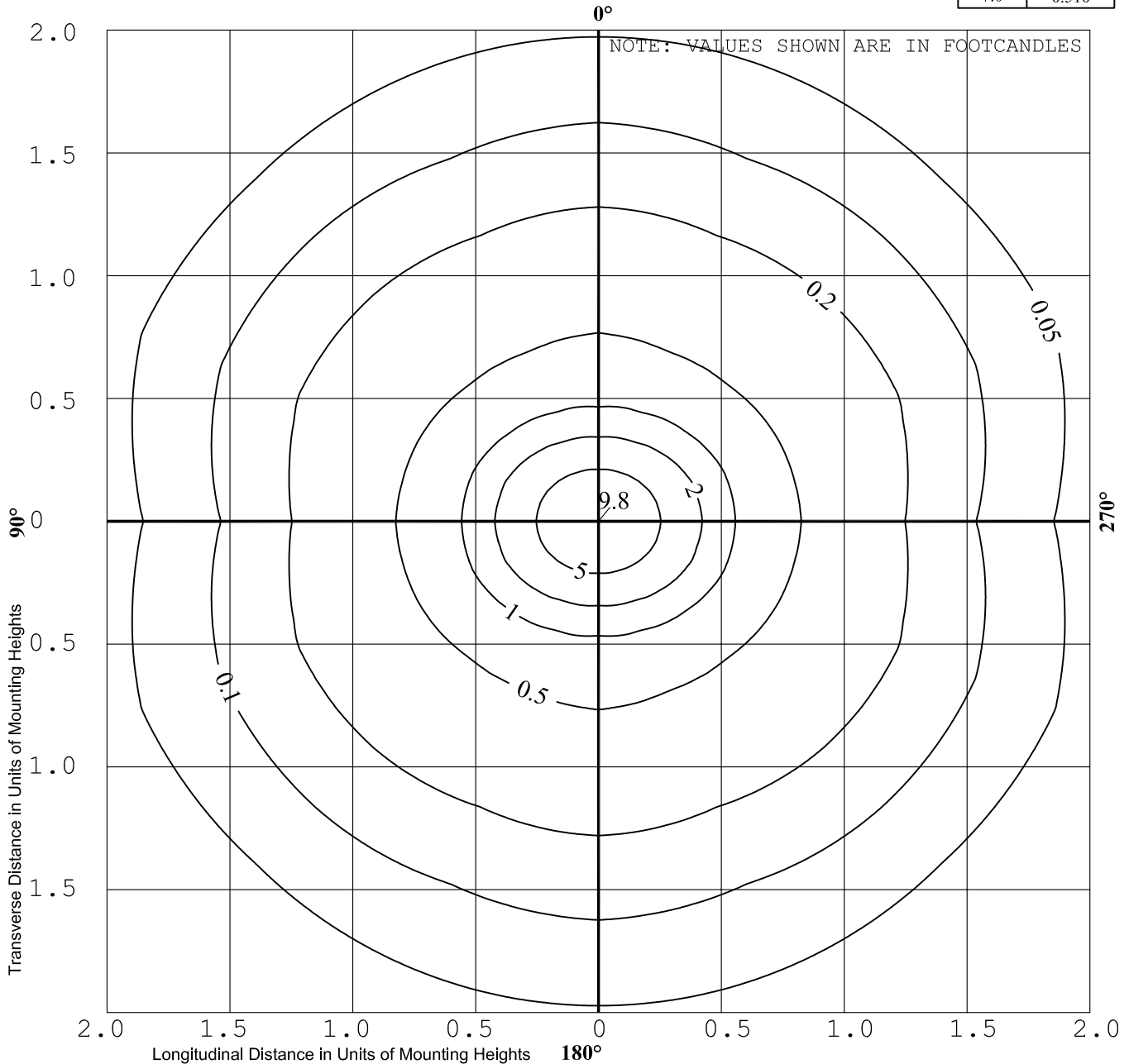
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DATE: 08/06/09

| Mounting Height Correction Factors | |
|------------------------------------|-------------|
| mtg hgt | corr factor |
| 3.0' | 2.778 |
| 4.0' | 1.563 |
| 5.0' | 1.000 |
| 6.0' | 0.694 |
| 7.0' | 0.510 |

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (12VAC, 60Hz) TO THE LAMP.

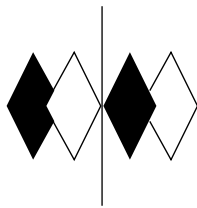


DIRECT CONTRIBUTION ONLY, NO INTERREFLECTED COMPONENTS (0% REFLECTANCES)

This lighting pattern represents illumination levels calculated from laboratory data taken under controlled condition in accordance with Illuminating Engineering Society approved methods. Actual performance of the manufacturer's luminaire may vary due to conditions including, but not limited to variation in line voltage, tolerance in lamps, and other variable field conditions.

ITL makes every effort to supply our customers with application work that is free from errors and without defects. However, since it is humanly impossible to be without error 100% of the time, the customer agrees to not hold ITL liable (for any error or defect) for more than the purchase price of these services.

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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REPORT NUMBER: ITL62878 Page 1 of 1
DATE: 8/04/09
PREPARED FOR: NEXXUS LIGHTING, INC.

CATALOG NUMBER: AACMR16WW25

LAMP: ONE MR-16 STYLE BI-PIN BASE LED LAMP, MOLDED FINNED WHITE PLASTIC BODY, ONE WHITE CIRCUIT BOARD WITH 39 VERTICAL BASE-UP WHITE LIGHT EMITTING DIODES (LEDS), MULTIPLE METAL POSTS BETWEEN UPPER AND LOWER HOUSING, FROSTED FLAT PLASTIC LENS WITH ONE CLEAR HEMISPHERICAL OPTIC BELOW EACH LED, VERTICAL BASE-UP POSITION.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (12VAC, 60Hz) TO THE LAMP.

INSTRUMENTATION: Kikusui PCR500L AC Power Source
Yokogawa WT210 Digital Power Meter
Optronics OL770 Spectroradiometer
ITL 1.5 Meter Diameter Integrating Sphere

OBJECT OF TEST: Measure the Correlated Color Temperature (CCT), Color Rendering Index (CRI), Chromaticity Coordinates (x,y), ANSI C78.377 Duv, and input electrical parameters.

PROCEDURE: The lamp was provided by customer and the LEDs had an unknown number of burn hours. The lamp was mounted inside the integrating sphere with the lamp in a horizontal position (LEDS facing down). The lamp was allowed to stabilize at 12 VAC input. After stabilization occurred, CCT, CRI, x/y chromaticity coordinates, ANSI C78.377 Duv, and input electrical data were measured with the lamp operating in the integrating sphere. In order to measure the mean performance, twenty data sets were recorded and averaged within the OL770. Readings were taken with the lamp operating at 12 VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology.

RESULTS:

| SPECTRORADIOMETRIC | |
|-------------------------------|-------------------|
| Observer | CIE 1931 2 degree |
| Correlated Color Temp CCT (K) | 3065 |
| Chromaticity Ordinate x | 0.4347 |
| Chromaticity Ordinate y | 0.4074 |
| Color Rendering Index (CRI) | 76 |
| ANSI C78.377-2008 Duv | 0.002 |
| ELECTRICAL | |
| Input Voltage (Volts AC) | 12.0 |
| Input Current (mA AC) | 288 |
| Input Power (Watts) | 3.30 |
| Input Power Factor (%) | 95.5 |

| |
|--|
| Checked: <u> <i>N Gully</i> </u> |
| Approved: <u> <i>R Bergin</i> </u> |